# Progress report
# L3 Muon software

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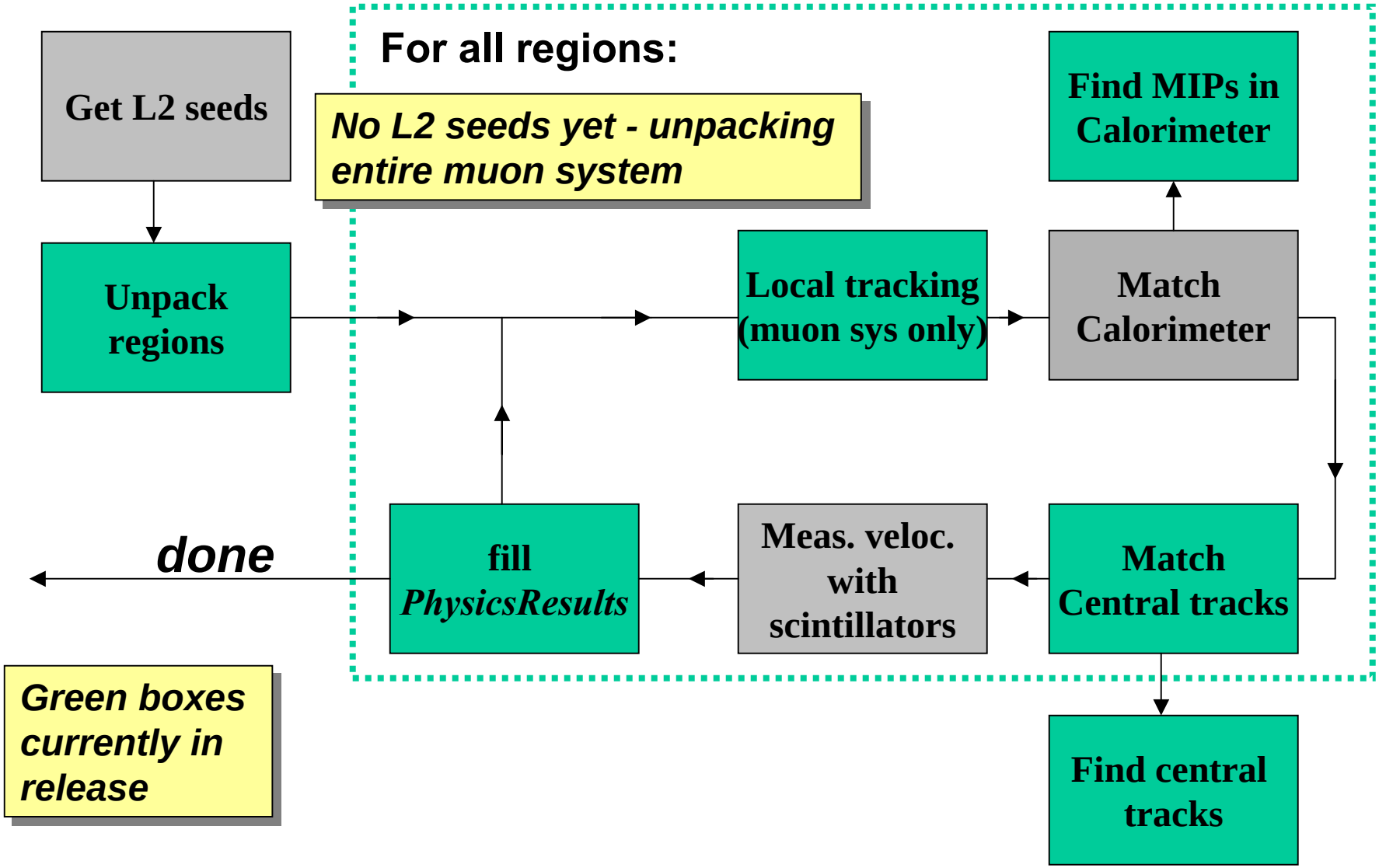
Muon Upgrade Meeting

# Filtering at L3

- **Trigger decisions are made by *filters* at nominally 1 kHz, based on information provided to them by *tools*.**
- **What filtering you can do is based on the filters you have implemented**
- **What filters you can implement depends on the tools available**
- **Goal is to have one *Global Muon Tool* providing all necessary information- different filters pick what they need**

# Global Muon Tool Flowchart



# Tool status (1)

- **Muon unpacking *L3TMuoUnpack***
  - **Implemented and tested online**
  - **Timing ~4 ms/event d0mino, single muons**
  - **N-tuple added to L3Analyze, equivalent to MuoXXXHit blocks in muo_analyze**
- **Local tracking *L3TMuoLocal***
  - **Implemented, waiting for online testing**
  - **Results from single-muons on d0mino depend on alg. params:**
    - **1000 single-muons events with pT 5-100 GeV**
    - **Timing 15-150 ms/event**
    - **pT resolution ~70%-35%**
  - **N-tuple added to L3Analyze, equivalent to MuoSeg+MuoTrack blocks in muo_analyze**

# Tool status (2)

- **Central Track Matching**
  - **Implemented, tested on single muons**
  - **Timing < 3 ms/event on d0mino, single muons**
  - **N-tuple block added to L3Analyze, with data of match and central track parameters**
- **Calorimeter tracking/matching**
  - **Tracking implemented, not thoroughly tested**
  - **Matching next on the list**
- **Scintillator tool**
  - **No manpower assigned- Pushpa's summer student?**

# Filter status

- **"Global" filter *L3FMuon***
  - **Runs global muon tool *L3TMuon*, which can run local tracking and central track matching**
- **Hit coincidence filter *L3FMuoHitCoinc***
  - **looks for two-hit-coincidence within muon sys.**
  - **used for taking cosmic data, min. bias data, etc.**
- **For online testing of tool code:**
  - **unpacking filter, passes if #hits > threshold**
  - **local tracking filter, passes if #track > N**
- **All available and ready for use**

# Conclusions

- **Now we can filter on**
  - **hit coincidences or # of muon hits**
  - **# of local tracks**
- **Next month we can filter on**
  - **local tracks matched to central tracks**
  - ***? local tracks matched to MIP signals in the calorimeter ?***
- **This summer we're likely to have the scintillator tool implemented**